

WHAT IS CLAIMED IS:

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*DO NOT
GIVE AWAY
WEIGHT*

1. A transluminal arrangement for positioning a prosthesis assembly at a particular position in a bifurcated lumen, the
5 bifurcated lumen including a main lumen and a first and a second branch lumen communicating with and extending from the main lumen, said prosthesis assembly including a bifurcated endovascular graft having a main body and a first and a second limb extending therefrom, said main body
10 including a main bore extending longitudinally therein and having a cranial orifice, said first limb including a first bore extending longitudinally therein, communicating with said main bore, and having a first caudal orifice, said second limb including a second bore extending longitudinally
15 therein, communicating with said main bore and having a second caudal orifice, said assembly including a main spring assembly and a first spring assembly each having a compressed state, said main spring assembly radially expanding said main body of said graft to substantially
20 conform said main body of said graft on an interior wall of the main lumen when said prosthesis assembly is positioned at a particular position in the bifurcated lumen and said main spring assembly is released from said compressed state, said first spring assembly radially expanding said first
25 limb of said graft to substantially conform said first limb of said graft on an interior wall of the first branch lumen when said prosthesis assembly is positioned at the particular position in the bifurcated lumen and said first spring assembly is released from said compressed state, said
30 transluminal arrangement comprising:

main container means for containing said main spring assembly in said compressed state;

first container means for containing said first spring assembly in said compressed state;

35 retainer means positioned in said main and first bores of said graft for retaining said prosthesis assembly

at the particular position in the bifurcated lumen while said main container means is withdrawn from said prosthesis assembly releasing said main spring assembly from said compressed state.

5 2. The transluminal arrangement of claim 1 wherein said main container means includes a main sheath having a longitudinal bore and wherein said prosthesis assembly is positioned within said bore of said main sheath.

3. The transluminal arrangement of claim 1 wherein said
10 retainer means comprises an elongated member having a dilator head at a distal end thereof, said head serving to facilitate penetration of said arrangement within the bifurcated lumen and to minimize deleterious blood flow through the bifurcated lumen during positioning of said
15 arrangement.

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4. The transluminal arrangement of claim 3 wherein said first container means includes a first sheath having a longitudinal bore and attached around said elongated member caudally from said dilator head and wherein said first
20 spring assembly is positionedⁱⁿ said bore of said first sheath.

5. The transluminal arrangement of claim 1 wherein said retainer means comprises main attachment means for temporarily attaching said main spring assembly to said
25 retainer means when said prosthesis assembly is being positioned at the particular position in the bifurcated lumen.

6. The transluminal arrangement of claim 5 wherein said retainer means comprises first attachment means for
30 temporarily attaching said first spring assembly to said retainer means when said prosthesis assembly is being positioned at the particular position in the bifurcated lumen.

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7. The transluminal arrangement of claim 6 wherein said
35 main and first attachment means comprises contraction means for temporarily pulling respectively said main and first

spring assemblies inwardly to said compressed state when said prosthesis assembly is positioned within said main sheath.

5 8. The transluminal arrangement of claim 7 wherein said main and first attachment means further comprise release means for releasing said prosthesis assembly from said retainer means either during or after removal of at least one of said main and first sheaths.

10 9. The transluminal arrangement of claim 8 wherein said attachment means comprises one or more connectors each in the form of sutures connected at one end to at least one of said main and first spring assemblies and at the other end to inside of said elongated tube via apertures, and wherein said release means is positioned within said elongated tube
15 for releasing said sutures from inside said elongated tube.

10. The transluminal arrangement of claim 1 further comprising a method of positioning said prosthesis assembly at the particular position in the bifurcated lumen, said method comprising the steps of:

20 providing a first and a second access to the first and second branch lumens, respectively;

providing a guide between the first and second accesses via the first and the second branch lumens;

25 positioning said transluminal arrangement at the particular position in the bifurcated branch lumen via the first access;

withdrawing said main container means from said prosthesis assembly;

30 positioning said second limb of said graft in the second branch lumen with said guide;

releasing said retainer means from said prosthesis assembly when positioned at the particular position in the bifurcated lumen; and

35 withdrawing said first container means from said first spring assembly.

11. The transluminal arrangement of claim 10 wherein said method further comprises withdrawing said retainer means, said main and first container means, and said guide from said bifurcated lumen.

5 12. A transluminal arrangement for positioning a prosthesis assembly at a particular position in a bifurcated lumen, the bifurcated lumen including a main lumen and a first and a second branch lumen communicating with and extending from the main lumen, said prosthesis assembly including a
10 bifurcated endovascular graft having a main body and a first and a second limb extending therefrom, said main body including a main bore extending longitudinally therein and having a cranial orifice, said first limb including a first bore extending longitudinally therein, communicating with
15 said main bore, and having a first caudal orifice, said second limb including a second bore extending longitudinally therein, communicating with said main bore and having a second caudal orifice, said assembly including a main spring assembly, a first spring assembly, and (a second spring
20 assembly) each having a compressed state, said main spring assembly radially expanding said main body of said graft to substantially conform said main body of said graft on an interior wall of the main lumen when said prosthesis assembly is positioned at a particular position in the
25 bifurcated lumen and said main spring assembly is released from said compressed state, said first spring assembly radially expanding said first limb of said graft to substantially conform said first limb of said graft on an interior wall of the first branch lumen when said prosthesis
30 assembly is positioned at the particular position in the bifurcated lumen and said first spring assembly is released from said compressed state, said second spring assembly radially expanding said second limb of said graft to substantially conform said second limb of said graft on an
35 interior wall of the second branch lumen when said prosthesis assembly is positioned at a particular position

in the bifurcated lumen and said second spring assembly is released from said compressed state, said transluminal arrangement comprising:

main container means for containing said main spring assembly in said compressed state;

first container means for containing said first spring assembly in said compressed state;

second container means for containing said second spring assembly in said compressed state;

main retainer means positioned in said main and first bores of said graft for retaining said prosthesis assembly at the particular position in the bifurcated lumen while said main container means is withdrawn from said prosthesis assembly releasing said main spring assembly from said compressed state;

first retainer means temporarily attached to said first spring assembly for retaining said first spring assembly in said first container means; and

second retainer means temporarily attached to said second spring assembly for retaining said second spring assembly in said second container means.

13. The transluminal arrangement of claim 12 wherein said main container means includes a main sheath with a longitudinal bore and wherein said prosthesis assembly is positioned in said bore of said main sheath.

14. The transluminal arrangement of claim 12 wherein said first container means includes a first sheath with a longitudinal bore and wherein said first spring assembly is positioned in said bore of said first sheath.

15. The transluminal arrangement of claim 12 wherein said second container means includes a second sheath with a longitudinal bore and wherein said second spring assembly is positioned in said second bore of said second sheath.

16. The transluminal arrangement of claim 12 wherein said main retainer means comprises an elongated member having a dilator head at the distal end thereof, main attachment

means for temporarily attaching said main spring assembly to said elongated member, and first attachment means for temporarily attaching said first spring assembly to said elongated member.

5 17. The transluminal arrangement of claim 16 further comprising first release means for releasing at least one of said main and first attachment means either during or after removal of at least one of said main and first sheaths.

10 18. The transluminal arrangement of claim 15 further comprising second release means temporarily attached to said second spring assembly for releasing said second spring assembly when positioned in the second branch of the bifurcated lumen.

15 19. The transluminal arrangement of claim 12 further comprising a method of positioning said prosthesis assembly at the particular position in the bifurcated lumen, said method comprising the steps of:

providing a first and a second access to the first and second branch lumens, respectively;

20 providing a guide between the first and second accesses via the first and the second branch lumens;

positioning said transluminal arrangement at the particular position in the bifurcated branch lumen via the first access;

25 withdrawing said main container means from said prosthesis assembly;

positioning said second limb of said graft in the second branch lumen with said guide;

30 releasing said main, first, and retainer means from said prosthesis assembly when positioned at the particular position in the bifurcated lumen;

withdrawing said first container means from said first spring assembly; and

35 withdrawing said second container means from said second spring assembly.

20. A transluminal arrangement for positioning a prosthesis assembly at a particular position in a bifurcated lumen, the bifurcated lumen including a main lumen and a first and a second branch lumen communicating with and extending from the main lumen, said prosthesis assembly including a bifurcated endovascular graft having a main body and a first and a second limb extending therefrom, said main body including a main bore extending longitudinally therein and having a cranial orifice, said first limb including a first bore extending longitudinally therein, communicating with said main bore, and having a first caudal orifice, said second limb including a second bore extending longitudinally therein, communicating with said main bore and having a second caudal orifice, said graft including a main spring assembly, a first spring assembly, and a second spring assembly each having a compressed state, said main spring assembly radially expanding said main body of said graft to substantially conform said main body of said graft on an interior wall of the main lumen when said prosthesis assembly is positioned at a particular position in the bifurcated lumen and said main spring assembly is released from said compressed state, said first spring assembly radially expanding said first limb of said graft to substantially conform said first limb of said graft on an interior wall of the first branch lumen when said prosthesis assembly is positioned at the particular position in the bifurcated lumen and said first spring assembly is released from said compressed state, said second spring assembly radially expanding said second limb of said graft to substantially conform said second limb of said graft on an interior wall of the second branch lumen when said prosthesis assembly is positioned at a particular position in the bifurcated lumen and said second spring assembly is released from said compressed state, said transluminal arrangement comprising:

a main sheath with said prosthesis assembly positioned in a bore of said main sheath;

main container means for containing said main spring assembly in said compressed state;

5 a first sheath with said first spring assembly positioned in a bore of said first sheath;

first container means for containing said first spring assembly in said compressed state;

10 a second sheath with said second spring assembly positioned in a bore of said second sheath;

second container means for containing said second spring assembly in said compressed state;

an elongated member positioned in said main and first bores of said graft; main attachment means temporarily
15 attaching said main spring to said elongated member first attachment means for temporarily attaching said first spring to said elongated member, said main and first attachment forming means for retaining said prosthesis assembly at the particular position in the bifurcated lumen while said main
20 sheath is withdrawn from said prosthesis assembly releasing said main spring assembly from said compressed state;

first retainer means temporarily attached to said first spring assembly for retaining said first spring assembly in said first container means;

25 second retainer means temporarily attached to said second spring assembly for retaining said second spring assembly in said second container means;

30 first release means for releasing at least one of said main and first attachment means either during or after removal of at least one of said main and first sheaths; and

second release means temporarily attached to said second spring assembly for releasing said second spring assembly when positioned in the second branch of the bifurcated lumen.

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